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Certificate No.: T- 4358

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2017-04-17-05**
Customer	:	Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore. **Date: 19-04-2017**
Address	:	(Project Division) Yelahanka Zone, BBMP, Bangalore.
Project Name	:	Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.
Agency	:	Technical Manager (west), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)YNK ZONE/WO/05/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-17
Sample ID No	:	2017-04-17-05-01
Sample Type	:	ACC 53 grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	18-04-17

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	2.65	–
2	Finess by Air permeablity method (m^2/kg, Min)	285.5	225m^2/kg, Min
3	Density (gm/cc)	3.17	–
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time	185 minutes	Not less than 30 minutes
6	Final Setting time	260 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	2mm	Not more than 10 mm

Note:

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Prepared by
Harshitha

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FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

****End of Report****

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2017-04-17-05** **Date: 16-05-2017**
Customer	:	Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore.
Address	:	(Project Division) Yelahanka Zone, BBMP, Bangalore.
Project Name	:	Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.
Agency	:	Technical Manager (west), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)YNK ZONE/WO/05/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-17
Sample ID No	:	2017-04-17-05-01
Sample Type	:	ACC 53 grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	18-04-17

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	38.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	54.5N/mm^2	Not less than 53 N/mm^2

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Quality Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2017-04-17-05** **Date: 20-04-2017**
Customer	:	Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore.
Address	:	(Project Division) Yelahanka Zone, BBMP, Bangalore.
Project Name	:	Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.
Agency	:	Technical Manager (west), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)YNK ZONE/WO/05/2017-18
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	17-04-17
Sample ID No	:	2017-04-17-05-02(b)
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	17-04-17

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	342	342	2.3	97.7	90-100
3	20 mm	5425	5767	38.4	61.6	30-70
4	10 mm	4768	10535	70.2	29.8	10-35
5	4.75 mm	4231	14766	98.4	1.6	0-5
6	Pan	234	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2017-04-17-05**

Sample ID No : 2017-04-17-05-02(b)

Date: 20-04-2017

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.7	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.6	
3	Specific Gravity	2.68	–
4	Bulk Density(Loose) (Kg/l)	1.55	–
5	Bulk Density(Compacted) (Kg/l)	1.59	–
6	Water Absorption(%)	0.26	–

Note:

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Quality Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2017-04-17-05** **Date: 21-04-2017**
Customer	:	Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore.
Address	:	(Project Division) Yelahanka Zone, BBMP, Bangalore.
Project Name	:	Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.
Agency	:	Technical Manager (west), KRIDL, Bangalore.
Customer Reference	:	EE(Project)YNK ZONE/WO/05/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-17
Sample ID No	:	2017-04-17-05-02(a)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	17-04-17

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	221	221	4.4	95.6	90-100
3	10 mm	2435	2656	53.1	46.9	25-55
4	4.75 mm	2200	4856	97.1	2.9	0-10
5	Pan	144	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2017-04-17-05**

Sample ID No : 2017-04-17-05-02(a)

Date: 21-04-2017

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.2	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.9	
3	Specific Gravity	2.70	–
4	Bulk Density(Loose) (Kg/l)	1.46	–
5	Bulk Density(Compacted) (Kg/l)	1.50	–
6	Water Absorption(%)	0.19	–
7	Aggregate crushing Value(%)	23.1	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.7	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Harshitha

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2017-04-17-05**

Date: 21-04-17

Customer : Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore.

Address : (Project Division) Yelahanka Zone, BBMP, Bangalore.

Project Name : Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.

Agency : Technical Manager (west), KRIDL, Bangalore.

Customer's Reference : EE(Project)YNK ZONE/WO/05/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 17-04-17

Sample ID No : 2017-04-17-05-03

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 17-04-17

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0	100	100	100	100	100
2	4.75 mm	88	88	8.8	91.2	90-100	90-100	90-100	95-100
3	2.36 mm	143	231	23.1	76.9	60-95	75-100	85-100	95-100
4	1.18 mm	177	408	40.8	59.2	30-70	55-90	75-100	90-100
5	600 micron	185	593	59.3	40.7	15-34	35-59	60-79	80-100
6	300 micron	166	759	75.9	24.1	5-20	8-30	12-40	15-50
7	150 micron	162	921	92.1	7.9	0-10	0-10	0-10	0-15
8	Pan	79	1000	100	0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2017-04-17-05**

Sample ID No : 2017-04-17-05-03

Date: 21-04-17

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	2.25	–
2	Specific Gravity	2.55	–
3	Material finer than 75 micron(%)	5.5	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Authorized Signatory
Quality Manager

****End of Report****

CEMENT CONCRETE FLOORING TILES

Lab ID : **CP-2017-04-22-01** **Date:** **25-04-17**

Customer : Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore.

Address : (Project Division) Yelahanka Zone, BBMP, Bangalore.

Project Name : Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.

Agency : Technical Manager (west), KRIDL, Bangalore.

Customer Reference : EE(Project)YNK ZONE/WO/05/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 22-04-17

Sample ID No : 2017-04-22-01-02

Sample Type/ Size : Pre-Polished Designer Cement Concrete Tiles

Reference to BIS codes : IS 1237:2012

Date of test : 22-04-17

1.Wet Transverse Strength

Sl.No.	Dimension (mm)			Wet Transverse Strength	Average	Requirement as per IS:1237-2012
	L	B	T	(N/mm^2)	(N/mm^2)	
1	400	399	25.09	7.36	8.00	The average wet transverse strength shall not be less than $3N/mm^2$.
2	401	401	25.05	8.66		
3	400	401	25.11	7.88		
4	400	399	25.06	8.25		
5	399	400	25.17	8.19		
6	400	400	25.13	7.63		

2. Water Absorption

Sl.No.	Dimension (mm)			Water Absorption	Average	Requirement as per IS:1237-2012
	L	B	T	(%)	(%)	
1	401	401	25.02	3.11	2.58	The average percentage of water absorption shall not exceed 10.
2	401	401	25.04	2.14		
3	400	399	25.06	2.17		
4	399	401	25.01	2.85		
5	400	400	25.05	2.47		
6	401	399	25.03	2.76		

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Authorized Signature
Quality Manager

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TEST REPORT OF CEMENT CONCRETE KERB STONE

Lab ID	:	**CP-2017-04-22-01**
		Date: 25-04-17
Customer	:	Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore.
Address	:	(Project Division) Yelahanka Zone, BBMP, Bangalore.
Project Name	:	Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.
Agency	:	Technical Manager (west), KRIDL, Bangalore.
Customer's Reference	:	EE(Project)YNK ZONE/WO/05/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-04-17
Sample ID No	:	2017-04-22-01-01
Sample Type /Size	:	CC Kerb Stone/ 450*165*400mm
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete
Date of test	:	22/04/2017

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	Kg	(Sq.mm)	(KN)	(N/mm2)	(N/mm2)	(N/mm2)
1	A	100.05	165.53	2.821	7860	140.1	17.8	16.6	20.7
2	B	100.01	165.55	2.793	7854	142.2	18.1	18.1	22.6
3	C	100.04	165.48	2.815	7859	144.1	18.3	18.3	22.9

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2017-05-02-04**

Customer : Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore. **Date: 05-05-17**

Address : (Project Division) Yelahanka Zone, BBMP, Bangalore.

Project Name : Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.

Agency : Technical Manager (west), KRIDL, Bangalore.

Customer's Reference : EE(Project)YNK ZONE/WO/05/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 02-05-17

Sample ID No : 2017-05-02-04-01

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/05/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M20	28/04/2017	05/05/2017	150.22 X 150.27 X 150.29	22574	8.211	397.3	17.6	17.3
2	PCC	M20	28/04/2017	05/05/2017	150.22 X 150.19 X 150.18	22562	8.312	390.3	17.3	
3	PCC	M20	28/04/2017	05/05/2017	150.16 X 150.24 X 150.21	22560	8.342	385.8	17.1	

Note:
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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2017-05-02-04**

Date: 26-05-17

Customer : Assistant Executive Engineer, (Project Division) Yelahanka Zone, BBMP, Bangalore.

Address : (Project Division) Yelahanka Zone, BBMP, Bangalore.

Project Name : Providing Children Play Equipment and Open Gym Equipment at SFS 407 park ward no.03.

Agency : Technical Manager (west), KRIDL, Bangalore.

Customer's Reference : EE(Project)YNK ZONE/WO/05/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 02-05-17

Sample ID No : 2017-05-02-04-02

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 26/05/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M20	28/04/2017	26/05/2017	150.22 X 150.28 X 150.26	22575	8.411	535.0	23.7	24.0
2	PCC	M20	28/04/2017	26/05/2017	150.22 X 150.26 X 150.21	22572	8.402	537.2	23.8	
3	PCC	M20	28/04/2017	26/05/2017	150.28 X 150.27 X 150.22	22583	8.430	551.0	24.4	

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